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10/586,476

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EXAMINER

RAO, G NAGESH

ART UNIT

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DELIVERY MODE

10/27/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



## **DETAILED ACTION**

### ***Priority***

1) Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on 2/3/04. It is noted, however, that applicant has not filed a certified copy of the Japan 2004-026887 application as required by 35 U.S.C. 119(b). For efficiency sake, it is preferred that applicant's file a copy of their claim for foreign priority, since they ensure have a copy of the document.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

2) Claims 9-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiyoshi (JP 2002-174593) in view of Kenji (JP 11-278983).

With respect to claims 9-14 Kiyoshi 593 pertains to a method of evaluating and cutting a single crystal ingot, whereby Kiyoshi 593 teaches evaluating the single crystal ingot (which was grown for the purpose of being cut into semiconductor wafers (Sections 0001-0002), whereby the ingot's oxygen concentration is measured via IR or FTIR technology before being cut. A predetermined value (which examiner is construing as the maximum or minimum value) of oxygen concentration is sought for measurement in a predetermined length of an ingot, for being the point to cut a block of the ingot out. The ingot is cut in a perpendicular direction to the growth axis (See Sections 0006-0010 and Figure 1), where presumably the block having met satisfactory predetermined conditions (i.e. based on the oxygen concentration value) and thus will be cut into wafers.

However Kiyoshi 593 does not explicitly state that the ingot is cut into blocks (plurality of block), and whereby the blocks are each sliced, thus producing semiconductor wafers.

In the same field of endeavor of evaluating and preparing single crystal ingots for cutting and preparing into wafers, Kenji 983 discloses that it is known in

the conventional prior art to generally process the ingot after grown, by cutting into a plurality of blocks which are examined based on the oxygen concentrations in the block and proceeded thereafter meeting satisfactory requirements to be cut into wafers (See Sections 0002-0009).

It would therefore be obvious to one having ordinary skill in the art at the time of the present invention to recognize the obvious incorporation of Kenji 983's prior art description with that of Kiyoshi 593 with respect to having multiple blocks cut from the ingot as a means for rapid production and processing of the single crystal ingots for wafer production.

With respect to claims 15-17 Kiyoshi 593 fails to address the continued processing based on whether the oxygen concentration range is met, and thus the block is either proceeded to be cut from the ingot or another sample is further sliced.

In the same field of endeavor of evaluating and preparing single crystal ingots for cutting and preparing into wafers, Kenji 983 discloses that it is known in the conventional prior art to generally process the ingot after grown, by cutting into a plurality of blocks which are examined based on the oxygen concentrations in the block but that if a sample cut is not of satisfactory conditions, another sample is sought thereafter (See Sections 0002-0009).

It would therefore be obvious to one having ordinary skill in the art at the time of the present invention to recognize the obvious incorporation of Kenji 983's prior art description with that of Kiyoshi 593 with respect to having multiple blocks cut from the ingot as a means for rapid production and processing of the single crystal ingots for wafer production.

With respect to claims 18-26, Kiyoshi 593 discloses that the single crystal silicon ingot, worked upon to produce semiconductor wafers, may have a diameter of 150 mm or less or 300 mm or more, satisfying the limitation of the claimed invention pertaining to the silicon ingot single crystal material (See Section 0015-0016).

### ***Response to Arguments***

3) Applicant's arguments filed 9/3/09 have been fully considered but they are not persuasive. With respect to 112 rejections clarifications in claim amendment make sense and appreciated. With respect to Foreign priority, examiner appreciates applicant's notation in the MPEP, nonetheless for sake of simplicity and given that applicant is wishing to claim foreign priority, it is the applicant's responsibility under USC 119 to file appropriate and necessary paperwork, since it is their application and desire to obtain foreign priority rights to protect their claim for "patent rights".

Upon review of the filed claim amendment, it is the applicant's position that the claimed invention is basically performing a scan (such as FTIR) on the silicon ingot determining oxygen concentration points whereby cutting the ingots into blocks at desired oxygen concentration points, which thereafter basically represent a max and a min for each block, i.e. one end would be a max value and the other end would be a min end, which is relative to each other, given that the next subsequent block, which corresponds to the previous block's min end, is now a max end and it's other side now has a min end, and etc... These concentration points basically forming inherently as a result of the Cz pulling process of the Si ingot where at one end of the ingot you have a max concentration of oxygen concentration and the other end of the ingot you a min end concentration.

What is maximum and minimum oxygen concentration values? Applicant's have not even claimed specific concentration points, just a claim for a max and min value for a cut block of semiconductor material from an ingot. Of course one end is going to have a max concentration of oxygen as opposed to the other end, this how it naturally occurs with Cz Silicon processing. Kiyoshi 593 actually discloses values in their specification and Kenji 983 discloses a rationale for working with the material on a block by block basis. One having ordinary skill in the art would

see the appropriate combination of the art and derive the same "claimed" invention that applicant's put forth.

Unfortunately at this time examiner must respectfully disagree with applicant's remarks and does not find the currently claimed invention in condition for patentability.

### ***Conclusion***

4) **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.



Any inquiry concerning this communication or earlier communications from the examiner should be directed to G. NAGESH RAO whose telephone number is (571)272-2946. The examiner can normally be reached on 8:30AM-5PM (INDEPENDENT FLEX SCHEDULE).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael KORNAKOV can be reached on (571)272-1303. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Art Unit: 1792

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